

SIX NEW SPECIES AND SUBSPECIES OF *NAESIOTUS*  
FROM THE GALÁPAGOS ISLANDS  
(PULMONATA: BULIMULIDAE)<sup>1</sup>

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For the purpose of studying the evolution and ecology of the land snails of the Galápagos Islands, especially of the *Naesiotus* species swarm that occurs there, I collected in 1970, 1971-72 and 1973-74 on the islands. Several new forms were found, of which *Nesopupa galapagensis*, a presumed Hawaiian immigrant, has been described earlier (Vagvolgyi 1974). The description of four new species and two new subspecies of the genus *Naesiotus* follows here. Other reports on the taxonomy, evolution and ecology of the Galápagos land snails are in preparation.

The abbreviations used below are as follows: CAS: California Academy of Sciences, San Francisco, California; CDRS: Charles Darwin Research Station, Santa Cruz, Galápagos, Ecuador; JV: my own collection; USNM: National Museum of Natural History, Smithsonian Institution, Washington, D.C.

*Naesiotus hirsutus*, new species

Plate I, Fig. 1a, b; Plate II, Fig. 1a, b; Fig. 2

*Holotype*.—USNM, catalog no. 757715. Paratypes in collection of the author. Type-locality: Santa Cruz (Indefatigable) Island, Archipiélago de Colón (Galápagos Islands), Ecuador; on southern slope, along the Old Trail connecting Puerto Ayora with Bella Vista, about 2½ mi N of Puerto Ayora, at 400-450 ft of elevation, in middle level of the transitional zone of vegetation (see Wiggins and Porter 1971); Sta. 128 of the author (Fig. 2).

*Material examined*.—Six samples, 1-55 specimens each, a total of 122 specimens, JV, have been measured (only adult shells, without major injury, were measured; young and subadult shells or adults with major injury, that presumably altered the shell characters under consideration, have been omitted from the measurements); additional material from these and a few additional localities, JV, as well as 44 lots from CAS have been qualitatively studied. Most CAS lots were identified as *N. jacobi* (Sowerby, 1833).

*Description*.—The shell is conical with nearly straight outlines. Height 8.5-12.0 mm, width 4.5-5.9 mm. The whorls are convex, whorl number 5.9-7.3; the first 1.7-2.3 whorls form the embryonic shell. The umbilicus is very narrow, 0.3-0.4, exceptionally 0.6 mm in diameter at its opening. The color of the fresh shell is light brown. The sculpture on the embryonic whorls consists of widely separated, fine, transverse riblets, 7-13/mm at the end

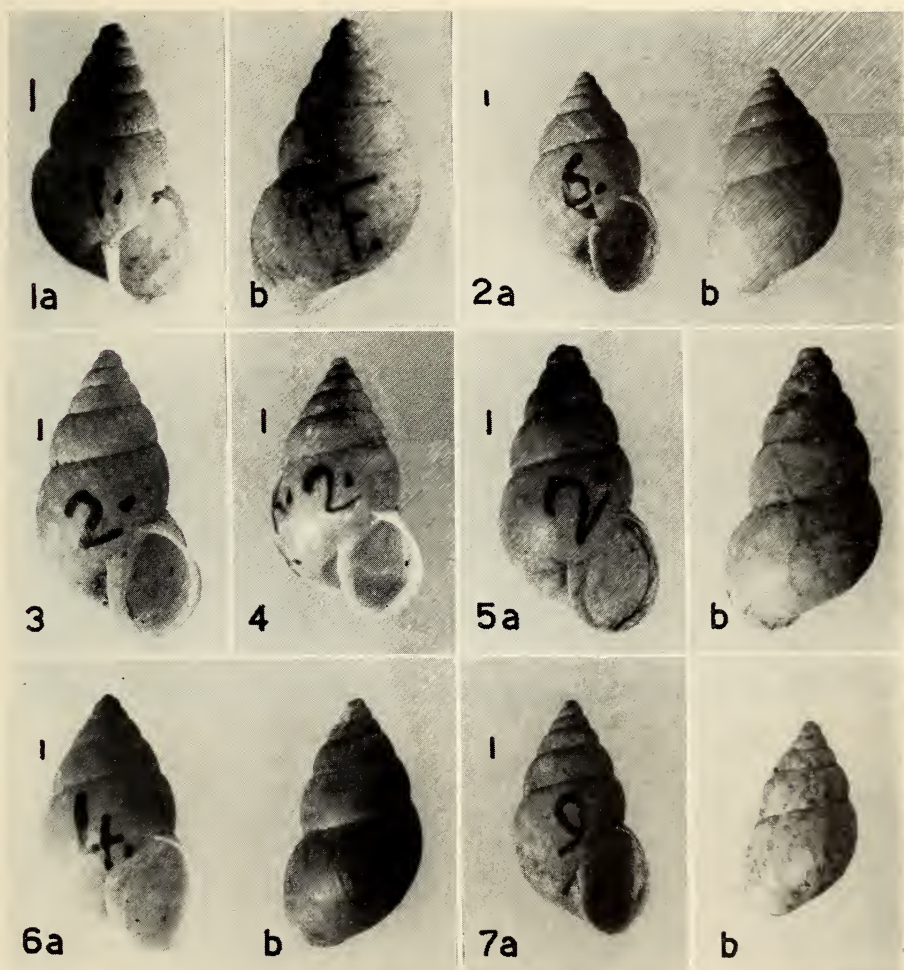


Plate I. New species and subspecies of Galápagos *Naesiotus*; for comparison, *N. t. tanneri* also is included. 1a, b, *Naesiotus hirsutus* sp. n., Santa Cruz Island, No. F1, holotype, USNM 757715, height of shell 9.9 mm. 2, *Naesiotus prepinguis* sp. n., Pinzón Island: a, No. 6, paratype; b, No. 5 (number not showing), holotype, USNM 757720, 16.2 mm; 3, *Naesiotus t. edenensis* ssp. n., Eden Island, No. 2, holotype, USNM 757716, 15.3 mm; 4, *Naesiotus t. tanneri* Dall, 1895, Santa Cruz Island, No. 2, 12.0 mm; 5a, b, *Naesiotus t. bartolomensis* ssp. n., Bartolomé Island, No. 2, holotype, USNM 757717, 14.1 mm; 6, *Naesiotus pinzonensis* sp. n., Pinzón Island: a, No. 4, holotype, USNM 757718, 14.0 mm; b, No. 9 (number not showing), paratype. 7, *Naesiotus pinzonopsis* sp. n., Pinzón Island; a, No. 9, holotype, USNM 757719, 12.7 mm; b, No. 14 (number not showing), paratype. Vertical bars represent 1 mm. Photos by Albert Burchsted.

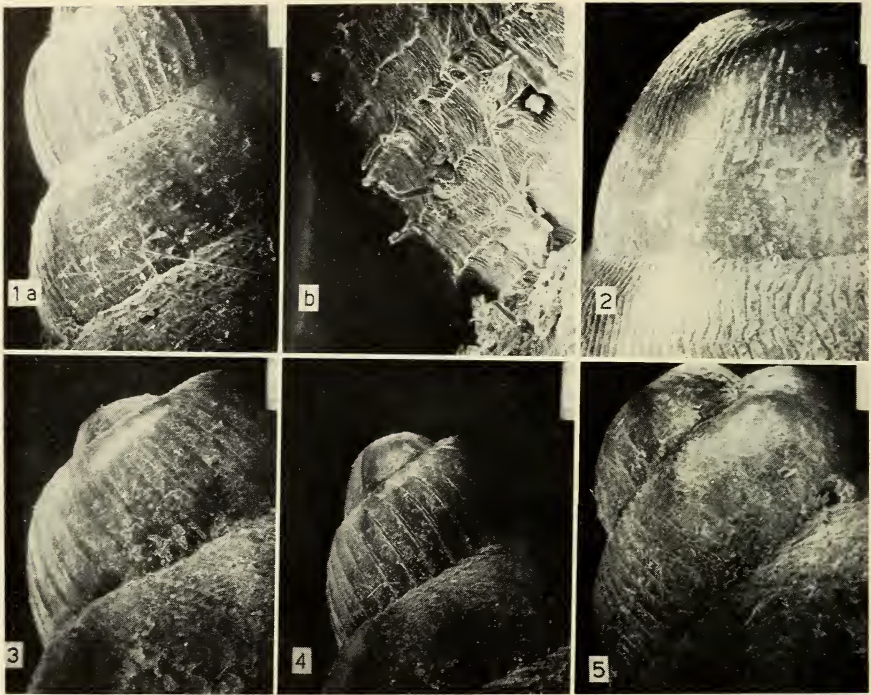


Plate II. Scanning electron micrographs of embryonic shells and sculpture of new taxa of *Naesiotus*. 1, *Naesiotus hirsutus* sp. n.: a, embryonic shell and first 2 postembryonic whorls; sculpture of former consists of widely spaced, fine, transverse riblets, that of latter, spiral lines and transverse wrinkles, and hairs arising from spiral lines, 80 $\times$ ; b, penultimate whorl, showing fine periostracal hairs arising from spiral lines; on the bottom a small part of last whorl also can be seen; 160 $\times$ ; 2, *Naesiotus pinzonensis* sp. n. showing embryonic shell; sculpture composed of closely set, transverse, wavy grooves; 160 $\times$ ; 3, *Naesiotus t. bartolomensis* ssp. n., showing embryonic shell and first postembryonic whorl; embryonic shell's sculpture is similar to that of *N. hirsutus*, above, 80 $\times$ ; 4, *Naesiotus t. edenensis*, ssp. n., showing embryonic whorls and first 2 postembryonic ones; embryonic sculpture is formed by widely spaced, fine, transverse riblets, as in the conspecific *N. t. bartolomensis*, and numerous other Galápagos *Naesiotus* species, 60 $\times$ ; 5, *Naesiotus prepinguis* sp. n., showing embryonic shell and first postembryonic whorl, embryonic sculpture is as described above, 90 $\times$ . The embryonic sculpture of *Naesiotus pinzonopsis* sp. n., not shown here, is similar to those in Figs. 1a, 3, 4 and 5.

of the first embryonic whorl, 10–20/mm, at that of the second (Pl. II, Fig. 1a); on the postembryonic whorls, the riblets are replaced by closely set, transverse lines and superimposed, spiral lines. From the periostracum of the spiral lines, curved periostracal hairs originate (Pl. II, Fig. 1b); the hairs fall off easily, as indicated by the fact that many brown colored, hence presumably fresh, shells lack hairs. The aperture is ellipsoid or oval, the



Fig. 1. Islands of the Galápagos Archipelago, Archipiélago de Colón: B, Bartolomé; BA, Baltra; D, Daphne; E, Eden; ES, Española; F, Fernandina; FL, Floreana; G, Genovesa; I, Isabela; M, Marchena; P, Pinzón; PI, Pinta; R, Rábida; S, Santiago; SCR, Santa Cruz; SCRI, San Cristóbal; SF, Santa Fé. Two small, outlying islands, Darwin and Wolf, are omitted. New taxa described in the text occur on the central islands of Pinzón and Santa Cruz and on a satellite of the latter, Eden. Scale: 30 nautical miles.

columellar wall is fairly straight; the apertural lips are slightly or moderately reflected except for the upper part of the outer lip which is not reflected at all; they are moderately thick; there is a slight callus on the parietal wall as well; teeth and lamellae, as a rule, are absent; however, 2 specimens have a small parietal tooth and one of them bears a columellar tooth as well. It is uncertain whether this is due to hybridization with toothed species or (phenotypic) variation.

*Differential diagnosis.*—As indicated by the fundamentally similar sculpture of the shell, *Naesiotus hirsutus* appears to be closely related to *N. jacobi* (Sowerby, 1833) of Santiago (James) Island. The differences are that *N. hirsutus* has conical shape, hairs on the periostracum, relatively



Fig. 2. Distribution of *Naesiotus t. tanneri* Dall, *N. t. edenensis* ssp. n. and *N. hirsutus* sp. n. on Santa Cruz and Eden Islands, based on records of the CAS and my own. Dashed line surrounds the area of distribution of *N. t. tanneri*, dotted line, that of *N. hirsutus* (note: *N. tanneri* also occurs on Daphne, Isabela etc. Islands, not shown here). C, Cerro Gallina, a locality of *N. hirsutus* in the dry zone; E, Eden Island, where *N. t. edenensis* occurs; H, Type-locality of *N. hirsutus*; T, Approximate type-locality of *N. t. tanneri* in Bahia Conway. Hollow rectangles; localities of *N. t. tanneri* from CAS collection; solid rectangles, those from JV; double solid rectangle *N. t. edenensis* from both collections. Hollow circles, *Naesiotus hirsutus*, CAS; solid circles, same, JV. Question mark over symbol indicates uncertain identification or inaccurate locality data. Triangle, Cerro Crocker, highest peak of Santa Cruz Island, 2,835 ft. Small circles and ovals of fine radial lines indicate some of the major craters of the central highlands. Solid ovals indicate the 3 main villages of the island: B, Bella Vista; P, Puerto Ayora; S, Santa Rosa. The southern outlines of Baltra Island, BA, and the small Guy Fawkes Islands, G, also are shown north of Santa Cruz. Scale: 5 nautical miles.

weak spiral lines and relatively large aperture, while *N. jacobi* is more oval, lacks hairs, has very strong spiral lines and a relatively small aperture.

*Distribution and ecology.*—*Naesiotus hirsutus* is restricted to Santa Cruz Island, where it is rather widespread (Fig. 2). We found it most abundant at localities in the upper part of the transitional zone which, ac-

According to Wiggins and Porter (1971:21) reaches from about 260 ft–630 ft on the southern slopes and 400 ft higher on the northern ones. However, there are records for *N. hirsutus* from the arid zone (CAS 40215, 500 m west of Cerro Gallina, 100 ft elevation, see Fig. 2) and from the rain forest zone as well (CAS 40302, 4.5 km northwest of Santa Rosa, dense *Scalesia* forest, etc.). There are no records from the summits, thus the area of distribution is probably ring-shaped. The species typically is a ground dweller; only one lot was reported from plants (the introduced species “mora,” which resembles in habit our raspberry bushes; CAS 40122, 5 mi northwest of Bella Vista, collected by André de Roy). It was not stated how high above the ground the snails were found, nor was the weather mentioned; this is of importance because after rain even “typical” ground snails may climb up on plants.

*Name and rank.*—The name “*hirsutus*” was chosen to express one of the most conspicuous features of the new species, the hairs on the shell. As the new species and its nearest relative, *N. jacobí* occur in allopatry, their taxonomic rank is uncertain. The great degree of morphological difference, however, warrants ranking both populations as separate, full species.

*Naesiotus tanneri edenensis*, new subspecies

Plate I, Fig. 3; Plate II, Fig. 4; Fig. 2

*Holotype.*—Deposited in USNM, catalog no. 757716. Paratypes in collection of the author. Type-locality: Eden Island, off Santa Cruz (Indefatigable) Island, Archipiélago de Colón (Galápagos Islands), Ecuador; on southern slope, 100–150' of elevation, in the dry zone of vegetation; Sta. 77, site #5 of the author (Fig. 2).

*Material examined.*—Four samples, 40–200 specimens each, JV, and 1 sample, 8 specimens, CAS, a total of 5 samples, 548 specimens, have been measured. Additional material from the same lots has been studied qualitatively.

*Description.*—The shell is conical and slightly convex in outline. Height 11.3–16.6 mm, width 6.7–8.8 mm. The whorls are moderately convex, 5.8–7.2 in number, including the 1.9–2.1 whorls of the embryonic shell. The umbilicus is partly covered by reflection of the columellar lip; it is wider than in most species of *Naesiotus* in the Galápagos but still narrow, 1.5–2.3 mm in diameter. The color of the freshest shells available is pale brownish-yellow; however, living specimens have not been found, and the color of their shells would probably be darker. The sculpture of the embryonic shell consists of widely separated, fine, transverse riblets; the intervals between the riblets become shorter near the embryonic shell, thus while there are 8–12 riblets per mm at the end of the first embryonic whorl, there are 12–16 at the end of the second (Pl. II, Fig. 4). The

earlier postembryonic whorls are lustrous and smooth with only 6–8 faint, but intermittently accentuated, spiral lines; on the later whorls these lines fade out and only the growth lines remain. The aperture is oval with a fairly straight columellar lip, its plane is slanted out and backwards; the lips are reflected except for the uppermost part of the outer lip; a heavy, white lip swelling runs just inside the lips except in the uppermost part of the outer lip; the parietal wall also has a white callus; there are no teeth or lamellae in the aperture.

*Differential diagnosis.*—*Naesiotus t. edenensis* differs from the nominal form, *N. t. tanneri* (Pl. I, Fig. 4) in having a larger and more oval shaped shell, narrower umbilicus and heavier lip swelling.

*Distribution and ecology.*—*Naesiotus t. edenensis* is a geographic isolate of *N. tanneri*, restricted to Eden Island (Fig. 2). Conspecific subspecies occur on Santa Cruz, Daphne, Bartolomé and probably also on Santiago, Pinzón (CAS 27548) and Isabela Islands (Volcano Darwin; CAS 40177). Eden Island is the remnant of a once larger volcano; its area is merely 0.03 km<sup>2</sup> (Wiggins and Porter 1971), its highest peak, an estimated 300–400 ft. Most of its rugged terrain is covered by palo santo trees (*Bursera* sp.), that form a sort of an open forest. The snails appear widely distributed on the island. At the time of my first trip there (20 April 1972) I collected hundreds of shells at several different sites but failed to find a single live specimen. Because of the novelty of the shells, I returned to Eden I. for 2 days (29–30 July 1972), reworked the old collecting sites on the southern slope and also collected at 2 more sites on the precipitous northern slope. I searched under leaf mold, in the crevices of and under rocks, and also on vegetation, but again found only empty shells. This was unusual for thorough collecting in such a small area. The weather did not seem responsible since the early months of 1972 were quite rainy. I hope future collecting will produce live representatives of this new snail.

*Name and rank.*—The name “*edenensis*” is derived from that of the island where the new subspecies occurs. The ranking of the taxon is uncertain; as an isolate, it could be ranked either a subspecies or a full species. I chose to rank it subspecifically because, together with *N. t. tanneri* of Santa Cruz and Daphne Islands, and *N. t. bartolomensis* of Bartolomé Island, it forms a single, closely knit group.

*Naesiotus tanneri bartolomensis*, new subspecies

Plate I, Fig. 5a, b; Plate II, Fig. 3

*Holotype.*—USNM catalog number 757717. Paratypes in collection of the author. Type-locality: Bartolomé Island, off Santiago (James) Island, Archipiélago de Colón (Galápagos Islands), Ecuador; at western foot of main peak, estimated elevation 10–15 ft, in arid vegetation; Sta. 50 of the author (Fig. 3).



Fig. 3. Distribution of *Naesiotus t. bartolomensis* ssp. n., restricted to Bartolomé Island, a small satellite of Santiago Island. Solid circle, type-locality; Solid triangle, highest peak of island (359 ft); Thin line: 300 ft elevation contour. Scale: 1 nautical mile. Conspecific subspecies occur on Daphne, Santa Cruz, Eden and Isabela Islands, and probably also on Pinzón and Santiago.

*Material examined.*—One sample, 5 specimens, JV, has been measured; additional specimens from the same lot, and one lot from CAS have been qualitatively studied.

*Description.*—The shell has a slender, conical spire with straight or very slightly convex outlines. Height of shell 12.0–14.0 mm, width, 5.1–6.0 mm. The 6.0–6.3 whorls are slightly convex; the first 1.8–2.1 whorls form the embryonic shell. The umbilicus is very narrow, 0.6–1.0 mm in diameter at its opening. The color of presumably fresh shells is light brown; living specimens have not been seen, their shells may be darker. The sculpture of the embryonic whorls consists of widely spaced, fine, transverse riblets, 8–10 per mm at the end of the first embryonic whorl and 12–16 at end of the second (Pl. II, Fig. 3); postembryonic whorls are smooth and shiny, with 7–10 weak, intermittent, spiral lines. The aperture is oval except the columellar region that is fairly straight; the lips are reflected except the upper end of the outer lip; the lip swelling is marginal, moderately thick; the parietal callus also is moderately developed.

*Differential diagnosis.*—*Naesiotus t. bartolomensis* differs from the nominal subspecies by its larger size and more slender, more conical shape; from *N. t. edenensis* by its shape and thinner peristome.

*Distribution and ecology.*—*Naesiotus t. bartolomensis* is known only from Bartolomé Island (Fig. 3). This population is an isolate of the widespread species *N. tanneri*, which is represented by at least 2 subspecies on Santa Cruz, Daphne, Eden and probably also on Santiago, Pinzón and Isabela (Volcano Darwin) Islands. On Bartolomé we collected at the western foot of the main peak (359 ft), at about 10–50 ft elevation. The vegetation was



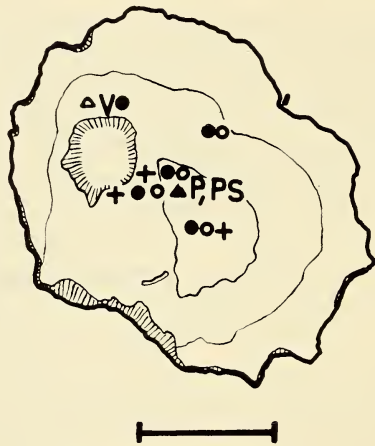


Fig. 4. Distribution of *Naesiotus pinzonensis*, *N. pinzonopsis* and *N. prepinguis* ssp. n. and *N. duncanus* Dall, all restricted to Pinzón Island. P, Type-locality of *N. pinzonensis*; PS, Type-locality of *N. pinzonopsis*; both type localities are actually near the main peak (1,502 ft) indicated by a solid triangle; V, type-locality of *N. prepinguis*, located near secondary peak (864 ft), indicated by a hollow triangle. Solid circles, *N. pinzonensis*; Hollow circles, *N. pinzonopsis*; Cross, *N. duncanus*, presumed to be extinct. Thin lines indicate the 500 ft and 1,000 ft contourlines. Shading, cliffs forming shore and crater. Scale: 1 nautical mile.

very sparse, composed of a few *Opuntia* trees (prickly pear) and bushes mostly in a leafless condition. We found the shells under the rocks and the litter, at the bases of bushes. While some shells were fresh, no living specimens were found. The CAS sample from Bartolomé consists entirely of bleached shells.

*Name and rank.*—The name “*bartolomensis*” refers to the island on which the new subspecies has been collected. As to its taxonomic rank, the same consideration applies as to *N. t. edenensis*, discussed above.

*Naesiotus pinzonensis*, new species

Plate I, Fig. 6a, b; Plate II, Fig. 2; Fig. 4

*Naesiotus olla* Dall, 1893:53; “Duncan, Indefatigable and Barrington Islands” (Pinzón, Santa Cruz and Santa Fé); “the grassy upper zone.”

*Holotype.*—USNM catalog no. 757718. Paratypes in collection of the author. Type-locality: Pinzón (Duncan) Island, Archipiélago de Colón (Galápagos Islands), Ecuador; on northern and western cliffs of the main peak, at about 1,400–1,500 ft elevation, in dense brush of transitional type vegetation; Sta. 97 of the author (Fig. 4).

*Material examined.*—Three samples, 1–11 specimens each, a total of 18

specimens, JV, have been measured; additional material from the same localities and the CAS collection has been studied qualitatively.

*Description.*—The shell is highly elevated, oval in outline. Height of shell 12.8–17.0 mm, width, 7.4–8.0 mm. The 6.1–6.9 whorls are very slightly convex. The embryonic shell consists of 1.7–2.3 whorls. The umbilicus is very narrow, 0.5–1.0 mm at its opening. The shell of live specimens is dark brown, often with a reddish, purplish or greenish tinge; a thin, light band can usually be seen along the periphery of the last whorl. The sculpture of the embryonic whorls is formed by very closely set, very fine, transverse grooves, 22–30 per mm near the end of the first embryonic whorl and 24–36, near the end of the second; the grooves sometimes fade out near the lower suture (Pl. II, Fig. 2); the postembryonic whorls are smooth and lustrous, ornamented by 7–10 barely perceptible, intermittent, spiral lines. The aperture is oval; the columellar lip is reflected; the lips and parietal walls are reinforced by a slight, whitish callus.

*Taxonomic relationships and differential diagnosis.*—The population described here as *N. pinzonensis*, of Pinzón Island, has been hitherto referred to as *N. olla* Dall, 1893 of “Duncan, Indefatigable and Barrington Islands” (Dall 1893:53; 1896:427; Dall and Ochsner 1928:163). However, the embryonic sculpture is quite different in the Pinzón population from that in the Santa Cruz one: closely set, wavy grooves in the former, widely spaced, straight riblets in the latter, and therefore the 2 populations must be separated. As the type-locality of *N. olla* Dall is in Conway Bay, Santa Cruz Island (USNM 107300 and 107300a), the Santa Cruz population must be called *N. olla*. Dall’s mentioning of Barrington Island as a locality for *N. olla* is, I believe, in error. I have made very thorough collections on that island, but did not find that species there.

According to its embryonic sculpture, *N. pinzonensis* belongs with the toothed species of Santa Cruz, Pinzón and southern Isabela Islands such as *N. ochsneri*, *N. wolfi*, *N. duncanus*, *N. albemarlensis* etc. and *N. unifasciatus* of Floreana and San Cristóbal. It is readily distinguishable from the former since it lacks apertural teeth and the heavy, irregular thickening on the last whorl, and from the latter, since it is much smaller and more slender. In fact, *N. pinzonensis* most closely resembles *N. ventrosus* Reibisch, 1892 of Santa Fé Island (Barrington) in regard to size, shape and macroscopically visible sculpture; the latter, however, belongs to the group characterized by widely spaced riblets on the embryonic shell.

In the field, the samples thought to be *N. pinzonensis* appeared to be extraordinarily variable in size. Laboratory examination clarified the situation; the samples were composed of not one, but 2 different species, *N. pinzonensis*, and *N. pinzonopsis*, another new species, described below. The 2 are nearly identical in macroscopically visible shell features except size, with *N. pinzonopsis* being smaller. The 2 species widely overlap in size, how-

ever, hence the apparent abnormally wide range of variation observed in the field samples. The two species contrast in embryonic sculpture: *N. pinzonensis* has closely set, wavy grooves, *N. pinzonopsis*, widely set, straight riblets.

*Distribution and ecology.*—*Naesiotus pinzonensis* only occurs on Pinzón Island (Fig. 4). We found it common in all parts of the island, from a few hundred feet up to the peak region (1,502 ft). In terms of vegetation, its habitats can be characterized as dry to moist transitional. *Prosopis*, *Croton* and *Opuntia* are conspicuous in the lower zone, *Zanthoxylum*, *Scalesia (incisa)* and *Tillandsia*, in the upper. *Naesiotus pinzonensis* is a ground dweller. It coexists with *N. pinzonopsis* at all localities, also with *N. prepinguis* in the lower northern part of the island, and *N. duncanus* (presumably extinct) in the peak region.

*Naesiotus pinzonensis* may suffer unusually heavy losses to predation by the introduced black or Norwegian rat, *Rattus rattus*; it seems conceivable that the extinction of *N. duncanus*, not collected alive since the turn of the century, was also caused by this predator. At first I assumed that *N. duncanus* still may exist and that the lack of live specimens might result from insufficient collecting. However, in December 1973 I spent 10 days on the island, yet failed to find a single live specimen or a fresh shell. I have observed predation of the black rat on *N. pinzonensis*, *N. wolffi* and other species in both field and laboratory. These observations will be published elsewhere.

*Name and rank.*—The name “*pinzonensis*” is derived from that of the island where the new species occurs. It seems best to rank the new taxon as a full species because it is quite distinct from any other species in its group.

*Naesiotus pinzonopsis*, new species

Plate I, Fig. 7a, b; Fig. 4

*Holotype.*—USNM catalog no. 757719. Paratypes in collection of the author. Type-locality: Pinzón (Duncan) Island, Archipiélago de Colón (Galápagos Islands), Ecuador; on northern and western cliffs of main peak, 1,400–1,500 ft elevation, in dense brush, transitional type of vegetation; Sta. 97 of the author (Fig. 4).

*Material examined.*—Five samples, 1–12 specimens each, a total of 16 specimens, JV, have been measured; additional material from the same localities, including many broken and young shells, has been studied qualitatively.

*Description.*—The shell has a slender, conical spire with slightly convex outlines; height 10.4–12.8 mm, width, 5.7–7.1 mm; it consists of 5.7–6.6, moderately convex whorls, of which the first 1.7–2.0 form the embryonic shell. The umbilicus is very narrow, 0.3–0.7 mm in diameter at its

opening, partly covered by the reflection of the columellar lip. The color of the fresh shell is brown, usually with a light band on the periphery of the last whorl. The sculpture of the embryonic whorls consists of widely separated, fine, transverse riblets, 12–16 per mm near the end of the first embryonic whorl, 12–20, near that of the second; the postembryonic whorls are smooth and lustrous, with 12–16 weak, intermittent spiral lines on the last whorl. The aperture is narrow oval, sometimes angular at its base, the lips are thin, the columellar lip reflected; there are no teeth or lamellae present in the aperture.

*Differential diagnosis.*—Whereas *N. pinzonopsis* cannot be surely distinguished macroscopically from the sympatric *N. pinzonensis*, they sharply contrast in microscopic sculpture of the embryonic whorls, the former having widely separated, straight riblets, the latter, closely set, wavy grooves. The nearest relative of *N. pinzonopsis* may prove to be an undescribed form from Santiago (James) Island, known only from a few specimens in CAS and JV collections.

*Distribution and ecology.*—*Naesiotus pinzonopsis* occurs on Pinzón Island. It is widespread there, from the dry to the moist transitional zones, from a few hundred feet of elevation up to the peak (Fig. 4). It is a ground-dwelling form. It coexists at all localities with *N. pinzonensis*, and also at the lower elevations, in the northern part of the island, with *N. prepinguis*, and at the higher elevations, with *N. duncanus*.

*Name and rank.*—The name "*pinzonopsis*" is intended to express the deceptive similarity between the new species and *N. pinzonensis*. At the moment, it seems best to consider this form a full species. Should the Santiago form prove conspecific, a change may become necessary.

*Naesiotus prepinguis*, new species

Plate I, Fig. 2a, b; Plate II, Fig. 5; Fig. 4

*Holotype.*—USNM catalog no. 757720. Paratypes in collection of the author. Type-locality: Pinzón (Duncan) Island, Archipiélago de Colón (Galápagos Islands), Ecuador; on the secondary peak (864 ft), north of the crater; in transitional type of vegetation; Sta. 88 of the author (Fig. 4).

*Material examined.*—One sample, 7 specimens, JV, has been measured; about 150 additional shells, many young and broken, have been qualitatively studied.

*Description.*—The shell has a highly elevated spire, with oval outlines; however, often a slight concavity is noticeable at the second and third whorls. Shell height 15.0–16.7 mm, width 9.0–10.0 mm. There are 6.2–6.7 moderately convex whorls; the body whorl is large, it makes up 68–72% of the total height of the shell; the embryonic shell consists of 1.8–2.1 whorls. The umbilicus although wider than usual in Galápagos *Naesiotus*, is still narrow, 1.3–3.2 mm in diameter. The fresh shell is of brown color; the

shells of living specimens have not been seen, however. The sculpture of the embryonic whorls is composed of widely spaced, fine, transverse ribs, 10–12 per mm at the end of the first whorl, 12–16, at that of the second (Pl. II, Fig. 5); the postembryonic whorls bear irregularly spaced, broad, low striae and weak, intermittent spiral lines. The aperture is large, oval shaped except that the joint of the basal and columellar lips is somewhat angular; this angularity corresponds to a crest that forms the base of the last whorl; the outer and basal lips are sharp, not reflected, while the columellar lip is moderately thick and reflected; a slight callus is present on the parietal wall; teeth and lamellae are absent.

*Differential diagnosis.*—*Naesiotus prepinguis* differs from its presumed nearest relatives, the taxa belonging to the *N. tanneri* group, in its larger and more voluminous shell, particularly in the dimensions of the body whorl and the aperture.

*Distribution and ecology.*—*Naesiotus ventricosus* is known only from a single collecting station, situated on the northern rim of the crater, at 864 ft (Fig. 4). The vegetation there was typically transitional, dominated by *Prosopis* and *Croton*, with a few *Cordia* bushes and a grassy undergrowth. We collected mostly under scattered rocks and boulders and found numerous shells but no live specimens. The species appears to be a ground dweller.

*Name and rank.*—The new species is named “*prepinguis*” because of its pot-bellied shape. It appears rather isolated from its nearest relatives, presumably the *N. tanneri* group, hence specific rank seems warranted.

#### Acknowledgments

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#### Footnote

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